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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,284	11/17/2003	Hashem Akhavan-Tafti	Lumigen 4.1-88	5215

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LUMIGEN, INC.
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EXAMINER

GROSS, CHRISTOPHER M

ART UNIT	PAPER NUMBER
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1639

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/25/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/715,284

Applicant(s)

AKHAVAN-TAFTI ET AL.

Examiner

Christopher M. Gross

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 3,6,7,13-21 and 24-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,8-12,22,23,27 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/11/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Responsive to communications entered 7/11/2006. Claims 1-28 are pending. Claims 3,6,7,13-21,24-26 are withdrawn. New claims 27 and 28 have been added. 1,2,4,5,8-12,22, 23, 27,28 are under consideration.

Priority

This application has a filing date of 11/17/2003. Applicant makes no claim for the benefit of any prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c).

Withdrawn Rejections

The rejection of claims 1, 8, 9 and 10 under 35 U.S.C. 102(b) as being anticipated by Kausch, et al (US Patent 5665582 - IDS entry 8/19/2005) has been withdrawn in view of applicant's amendments to the claims.

The rejection of claims 1, 8, 9 and 12 under 35 U.S.C. 102(b) as being anticipated by Summerton, et al (US Patent 6060246 - IDS entry 8/19/2005) has been withdrawn in view of applicant's amendments to the claims.

The rejection of claims 1 and 8 under 35 U.S.C. 102(b) as being anticipated by Lough, et al (US Patent 5900481) in view of applicant's amendments to the claims.

The rejection of claims 1,2,4,5 and 8 under 35 U.S.C. 103(a) as being unpatentable over **Tundo et al** (1982 JACS 104: 6551-6555) and **Lough et al** (US Patent 5900481) has been withdraw in view of applicant's arguments.

The rejection of claims 1 and 22 and 23 under 35 U.S.C. 103(a) as being unpatentable over **Roberts et al** (US Patent Application Publication 2003/0158333) and **Lough et al** (US Patent 5900481) has been withdrawn in view of applicant's arguments.

Maintained Claim Rejection - 35 USC § 103

Claims 1,2,4,8,11 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hughes** (1996 Tetrahedron Letters 37: 7595-7598) and **Lough et al** (US Patent 5900481).

Response to Arguments

Applicant argues not all elements are taught by the combined teachings of Hughes and Lough et al (ii) there is no motivation to combine the teachings of Hughes and Lough et al.

Applicant's arguments have been considered, but they are not persuasive for the following reasons.

(i) Applicant argues, see p 9-10 (7/11/2006), that phosphorous is never removed from the solid support according to Hughes and further that hydrolytic cleavage of the phosphonium salt support recreates the original triphenyl phosphine resin. The examiner concedes the first point, that the phosphorous is never removed, however as evidenced Bernard (1983 JOC 48:326-332, see especially table IV), hydrolysis of Hughes' phosphonium salt produces a neutral phosphine oxide species, rather recreating the triphenyl phosphine resin, as alleged by applicant. It is noted that a neutral phosphine oxide lacks a positive charge for electrostatic attraction of a nucleic acid, thus hydrolysis of the phosphonium salt of Hughes represents "a cleavable linker

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portion linking the nucleic acid binding portion to the solid support,” as set forth in claim 1.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., cleavage of the onium salt) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

(ii) Applicant argues, see p 10 (7/11/2006) that there is no motivation to combine the teachings of Lough et al and Hughes because there is no concept of orthogonal nucleic acid binding in Lough et al, but rather orthogonally cleavable linkers. The examiner submits that each of these concepts are intertwined in Lough et al, and applicant's attention is respectfully invited to figures 1 and column 5 lines 18-31 of Lough et al.

Lough et al teach two linkers: one for binding a bead to a surface and another linking an oligonucleotide to said bead. Each of said linkers of Lough et al may be cleaved independently (orthogonally) of one another. Lough et al gives the example of a disulfide linker (cleavable by thiolysis) and a trityl linker (cleavable with acid). The examiner submits that another linker might be the hydrolytically cleavable phosphonium salt of Hughes.

Applicant argues, see p 11 (7/11/2006) that any modification of Lough et al should still result in a material with a conjugated nucleic acid for sequence specific

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capture of nucleic acids, however figure 4 of Lough et al illustrate non-covalent and non-specific interaction of a 5'-trityl labeled oligonucleotide with a bead by hydrophobic interaction, thus in contrast to applicant's argument, Lough et al does not teach away from the claimed invention being directed to non-covalent and non-specific nucleic acid capture.

New Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1,2,4,5,8-12,22, 23, 27,28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

This rejection is necessitated by applicant's amendments to the claims

Claims 1,27 and 28 are directed to a solid phase for binding nucleic acids comprising a nucleic acid binding portion for non-covalently and non-sequence specifically binding nucleic acids.

The specification as originally filed provided no implicit or explicit support for non-covalently and non-sequence specifically binding nucleic acids.

Applicants are reminded that it is their burden to show where the specification supports any amendments to the claims. See 37 CFR 1.121 (b)(2)(iii), the MPEP 714.02, 3rd paragraph, last sentence and also the MPEP 2163.07, last sentence. MPEP 2163.06 notes "If new matter is added to the claims, the examiner should reject the claims under 35 U.S.C. 112, first paragraph - written description requirement. *In re Rasmussen*, 650 F.2d 1212, 211 USPQ 323 (CCPA 1981)." MPEP 2163.02 teaches that "Whenever the issue arises, the fundamental factual inquiry is whether a claim defines an invention that is clearly conveyed to those skilled in the art at the time the application was filed...If a claim is amended to include subject matter, limitations, or terminology not present in the application as filed, involving a departure from, addition to, or deletion from the disclosure of the application as filed, the examiner should conclude that the claimed subject matter is not described in that application. MPEP 2163.06 further notes "When an amendment is filed in reply to an objection or rejection based on 35 U.S.C. 112, first paragraph, a study of the entire application is often necessary to determine whether or not "new matter" is involved. *Applicant should therefore specifically point out the support for any amendments made to the disclosure.*

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Gross whose telephone number is (571)272-4446. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. Douglas Schultz can be reached on 571 272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Christopher M Gross
Examiner
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cg

JON EPPERSON
PRIMARY EXAMINER

A handwritten signature in black ink, consisting of a large, stylized 'J' followed by a long, sweeping horizontal stroke that curves upwards at the end.